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A DEFINITION OF CAUSATION. I

THE category of causation was once regarded as rather fundamental in metaphysics; but in western civilization man's interest in man has so taken possession of the field that philosophers now study almost exclusively the problems of subjectivism, human knowledge, or the nature of consciousness. Consequently it is difficult to find a modern discussion of causation which attempts anything like an exhaustive investigation of its meaning. It is treated in passing, with a remnant of respect for an old tradition, and generally from the basis of an already finished system. Some have even gone so far as to say there is no such thing as a cause.[1] This extreme statement—though made, at one time or another, of most of the important categories—hardly merits much attention; for when the scientist or the ordinary man uses the word cause, he is assuredly thinking of something. The only question is what? Indeed the question, whether this or any other concept has objectivity, is subsidiary to the question, what does the concept mean? Only after decision of the latter can the former be answered. Meanwhile, we should not make too much of the fact that current interest is not centered upon defining objective categories. Fashions of thought change; the old discarded view is restored—witness the present revival of Platonic realism—and sooner or later we may expect a renewal of interest in things that are not man's. And of these causation appears to be one of the principal ones. The plain fact that in our transactions with reality—so far as reality is vouchsafed to mortals—the category is inevitable and ubiquitous, at least suggests this. We may reflect, too, that the great bulk of the increase of our knowledge of reality in detail, *i. e.*, the content of the sciences, has come from looking for the causes of things. *Prima facie* it would hardly seem possible to form a philosophical system, either closed or open, without first according this category a serious treatment.

[1] So Mach: "There is no cause and effect in nature; nature has but an individual existence; nature simply *is.*" *Science of Mechanics* (Eng. transl.), page 483. *Cf.* also B. Russell, *Proc. Arist. Soc.*, 1912–13, page 1.

The main reason of its importance lies in the fact that it deals with the connection of events. Philosophers seek to know the universe as a whole—be it of externally joined parts or an articulated system. The thread which connects these parts in time is causation. From one isolated event it leads to another. Can one understand the constitution of the world unless he knows how this is done, of what stuff this glue is made that attaches one event to another? Other modes of connection there may be, too; but any mode that unites, that gives a rational, systematic character to the world, is of fundamental significance for philosophy.

The problem of causation, being so central, is a very large one; the bibliography alone is appalling. This same term has meant many different things in the course of history; it has been believed to represent a substance, a force, an event, a relation, a mere word. Presumably no broad treatment of it to-day could dispense with these labors of the past. They are manifold and full of ingenious speculation, and some of the best work, within the last century, is little known. The standard histories (König's, Lang's, Göring's, etc.) give but small idea of this last. It is, however, manifestly undesirable to bring much of this material into a discussion in a journal. What we shall have to say will be along a line which has not been touched as yet, except in a very fragmentary way. It is not regarded by the writer as final, but simply as a piece of work that needs to be done, and has not been done. It is also regarded by the writer as the natural way, and, philosophically, the indispensable way of attacking this problem—for reasons which shall soon be given. But it will remain subject to certain philosophical criticisms which can not be answered by any result obtained in this investigation, but must be examined on their own account. For that part of the problem the contributions of past thought form a necessary basis. We pass now to the statement of our particular topic and method.

When physics tells us that heat causes a body to expand, that the electric current causes a magnetic needle to be deflected, or that a ray of light is due to the motion of electrons, what is the character of the connection between the members in each pair? Suppose we take the analysis science furnishes of each cause, and of each effect, and of the process by which the one turns into the other; suppose this accomplished for all kinds of cases which are treated in the various sciences; and suppose, finally, that we find, common to all the cases, a certain logical structure. Then that structure will constitute an empirically grounded definition of causation. A definition obtained by this method will presumably be the only one which applies to real events and is valid in the actual world; for the causation men know and profit by is one which reveals itself always in specific cases, and

it is not likely that its character can be understood quite apart from its behavior in those cases. Nevertheless, this method has seldom been pursued, and never, I think, with a sincere attempt at comprehensive treatment. The usual method is rather to treat the category as a member of a hierarchy of concepts, as part of a rational ideal, whose meaning can be deduced by analysis of that ideal and is quite independent of empirical characters. Whether in the expansion of a body by heat, or in the explosion of gunpowder by a spark, the causal connection is assumed to be indifferent to the particular nature of the event; as indifferent as is number to the color of the objects numbered. Such a procedure is to the one first described as abstract to concrete. It is not confined to either idealism or realism; it is used by Russell and G. E. Moore as well as Natorp and Royce. The only difference is that the former pair would consider the concept independent of the mind; the latter, due to the mind's activity. And it may very well be true that there is a certain ideal concept, fitly called causation, which is definable by abstract deductive methods. Yet it remains doubtful, until it is compared with an empirical definition, whether this is the causation the scientist uses and the philosopher evaluates in his criticism of science. And if it is not that kind of causation, it is, though certainly of some value, yet of much less value than the latter. Philosophy is interested primarily in the real, and the world with which the sciences deal is at least fairly high in the scale of realities. So the kind of causation, by virtue of which one body hitting another moves it, is for philosophy considerably more important than any abstractly perfect ideal which does not hold of actual events. Naturally one can not deny beforehand that the definitions given by the abstract method really do apply to the existent world. The method itself, however, does not seem likely to give the kind of result which philosophy desires to get; some "schematism" at least would be necessary, to show that such a concept would be applicable to the concrete. In seeking a definition of causation, accordingly, we must choose the empirical or concrete method.

The position here taken is independent of the general issue about the "externality" or "internality" of relations. Those who hold the former view do indeed tend to believe that, in general, concepts are independent of, and external to, their particular examples in the actual world; while advocates of "internality" do not admit such independence. While we do here claim that the concept causation can not be understood, in so far as *philosophy* desires to understand it, when treated as thus independent, it is not because of a general adoption of the doctrine of internality. It is because the causation which alone is deserving of serious study seems to be the causation

which is "internal" to the actual world, which forms the object-matter of the sciences. Causation is, as Kant showed, a category *prima facie* concerned with actuality; number and quantity are not by definition so directly concerned with it. Its own special nature, then, makes causation internal to the particulars of the actual world.

Our purpose is then to determine the meaning of causation as it is found to hold in the actual course of events; that is, in the details of the sciences. It is not, at present, to decide any question about the metaphysical rank of the category. This inquiry is only a necessary preliminary to such a decision; it would get the concept fairly before us, and ignore philosophical criticism until that is done. It is necessary, however, to forestall one philosophical objection which, if sound, would seem to invalidate beforehand the mode of investigation adopted.

There is a familiar view to the effect that science does not give facts, but artifacts ("fictions" is too strong a word). The rigid bodies, uniform atoms, symmetrical waves, of the text-books, are said not to exist, and accelerations, as well as other functions, to be only numbers. Accordingly, we can not study *actual* causation, for it is not actual but ideal. And being ideal, its nature can be understood only from the abstract, ideal side, as part of a great ideal of rationality, or in Professor Royce's words, as theory of order. Now this objection is really irrelevant. Even if the concepts used by science are not names of existing facts, they are nevertheless, as science studies more deeply, ever closer approximations to existing facts, and their detailed content depends more and more upon the nature of those facts. Indeed, as Professor Royce shows,[2] the very result of the abstractness of the scientific concepts is that many consequences can be deduced from them, and experimental verification, therefore, may become more manifold. As it were, they draw away from fact in order to get closer and closer to it; so that the full nature of the abstract is realized only in its approximate verification in the concrete. Oddly enough, he does not draw what seems the natural conclusion, that the abstract concept has little meaning by itself, but says, rather, "The order-systems . . . are therefore to be studied with a true understanding only when one considers them in abstraction from the 'probable' and 'approximate' exemplifications which they get in the physical world" (pp. 94–95). Now the definition of causation obtained from these approximately realized concepts is, in general, different from that derived from a simple abstract treatment like that of the theory of order, and is surely much nearer to the concrete. We should gain the truest comprehension of causation by learning its meaning in as close juxtaposition to facts as science can afford us.

[2] *Encyclopædia of Philos.*, Vol. I., pages 94–95.

This procedure, if still somewhat ideal, is not unmixedly so, but swayed to a large extent by the nature of facts. We shall in the course of our analysis find some reason for suspecting this whole philosophical objection of unsoundness, but it is not now necessary to raise that question. It is not because the abstract views rest upon a mistaken view of science, but because they are so poor and meager of content, that they are considered unprofitable. They do not study the concept of causation as it has been fully developed in its employment with facts.

This same objection sometimes takes another form. Science has obviously two ideals: that of pure rational system, and that of information about particular facts in time and space. One who values the abstract higher than the concrete will probably tend to identify science with the former ideal rather than with the latter or with both. So, *e. g.*, we find one who approaches philosophic questions from the mathematical field, regarding the most perfect sciences as the most mathematical, and the least concerned with events as causes. "In the motions of mutually gravitating bodies, there is nothing that can be called a cause, and nothing that can be called an effect; there is merely a formula."[3] "This statement holds throughout physics, and not only in the special case of gravitation."[4] " . . . in advanced sciences such as gravitational astronomy, the word 'cause' never occurs" (p. 1). These statements seem very one-sided. They altogether overlook the concreteness of science. If the word "cause" is seldom used in text-books of physics, it is that it is so obviously taken for granted. But it *is sometimes* used. Watson says[5] "an experiment is simply the artificial arrangement of certain causes, so that . . ."; although, having stated this at the outset, he does not find it necessary to repeat the word "cause" very often in describing particular experiments. Nevertheless, more or less equivalent words, such as "produce," "generate," "give rise to," are frequently used. Science doubtless aims at mathematical system, but it never loses touch with experiment, or with the verification of its deductions, approximately, in particular cases.

There is a more practical objection to this undertaking of ours, which consists in the fact that science changes. Light was once described in terms of the emission theory, then of the ether-undulation-theory, now of the electromagnetic theory. Perhaps fifty years hence the present views on the motion of electrons will be antiquated. Better stick to the formal deductive side alone, and run no risk of refutation by future science! That *would* be the safer course, no

[3] B. Russell, *Proc. Arist. Soc.*, 1912–13, page 14.

[4] *Ibid.*

[5] "Text-book of Physics," page 3.

doubt. But it would tell us very little about real causation. Meanwhile, the changes of science are not wholly destructive. Statics has grown, practically by addition alone, and Newton's laws remain empirically valid within the margin of error. But even if so extreme a position as that of H. Poincaré were correct, and causal explanations were matters of choice, it would still be our duty to examine the structure of all those which one might choose. At any rate, there is no higher source of knowledge about the causation of the actual world than the latest results of science. In the attempt to reach results so certain that they can never be refuted, we are likely to commit the fault of which the absolutists are accused—I do not say with justice—of getting something which has no possible bearing upon the particulars of experience. While this might be permitted to an Absolute, it is clearly ruled out for a scientific category; for science directs itself toward the existent.

It has been said above that the empirical method is the only one fitted to define the causation philosophy is interested in. That does not imply that it may not involve, in the working out of its analyses, deductive methods. What is needed to-day is a protest against the exclusive use of the latter; a use which by its abstract and exact mathematical form has apparently attained certainty at the cost of truth. We can not, of course, get universals from *mere* summation of particulars, nor the universality inherent in a causal process merely from a number, however large, of specific instances. But we must know the nature of those instances before we can see how the university of law is able to embody iteself. Our method then is alleged to be the only one which makes it possible to understand how the universal is adapted to the particulars.

Now what within the field of the sciences shall we select as cases of cause and effect, and what reject? For not all scientific reasoning concerns these categories. The equations of dynamics are worked out by means of mathematical properties; *that* part of dynamics is clearly not pertinent. The test must be this: wherever a law is spoken of, or a principle, in accordance with which one actual fact, situation, or event uniquely determines another fact—or its own future state—then we have what science treats as causation. The two categories, causation and law, are one in denotation. We must then—without denying that some causes *might* act individually and not by law—govern our selection for the present investigation by the criterion of law.

Perhaps some apology is needed from the present writer for venturing into the field of science, inasmuch as it is only too obvious that he is far from possessing competence therein. This, however, is one of the risks that can not well be avoided. Philosophers who have

had the advantage of scientific training have not been disposed to connect the categories with their empirical manifestations. The form and the matter of knowledge have remained apart, sundered, neither adapted to the other. Some one must attempt to overcome this estrangement. It is very probable that first endeavors in this direction will at least partially fail, owing to misapprehension in regard to the accepted truths of science. But it seems to the writer better to make a move, however inadequate, in the right direction, than to go on waiting in the vain hope that a well-qualified investigator will do it. Mistakes may be corrected, and it is hoped will be. But until some such inquiry into the structure of the concrete world of experience has been made, philosophers will have little to occupy themselves with but an epistemology which is constituted by mutual refutations.

The sciences which aim to deal with facts comprise physics, chemistry, astronomy, geology, biology, history, linguistics, economics, political and social sciences, and the psychological and anthropological sciences. There does not seem to be any systematic body of knowledge which can not be brought under one or more of these heads. Statistics is here excluded, for two reasons: (1) as set forth in text-books like those of Bowley and Yule it is a method of getting as exact knowledge as possible about facts rather than of *directly* finding causal connections, (2) it is concerned, so far as it gives laws, mainly with the important (and by philosophers hitherto largely neglected) concept of probability rather than that of causality.

How many, then, of these sciences offer distinct types of causation? Some of them certainly do not. Thus, geology and astronomy clearly explain their facts by appealing to the laws and causes set forth in physics and chemistry. Biology, for many biologists, does the same. Other biologists claim a special, unique kind of causation, *viz.*, that of an "entelechy." The point is not yet settled; but until all biologists are agreed that there is a kind of causal explanation not reducible to terms of physics or chemistry, we can hardly take it as a datum for our investigation. Though not denying its existence, we may fairly say that until it is generally accepted in biology as a fact, and shown analogous in structure to cases admittedly causal in other sciences, it does not deserve the name causation. The psychological sciences contain a similar uncertainty. Some psychologists—*e. g.*, Wundt—believe in psychical causality *sui generis;* others do not. Until the matter is decided we can not take the alleged cases of psychical causation as data for analysis. In economics, history, political and social sciences, no one, so far as I know, pretends that there is any kind of process not explainable in psychological, biological, physical, or chemical terms; except in the case of history, where we

have the familiar view of Rickert *et al.* This view is by no means generally accepted by historians. Alleged cases of *"individuelle Kausalität"* or historical, personal causation can not then be taken as data. Linguistics, finally, explains by appeal to biological and psychological processes; these we have already dealt with. The only sciences, then, in which by the general agreement of those pursuing them there seem to be independent types of causation, are physics and chemistry. These sciences have analyzed particular causal processes to an extent unparalleled by the others. By this work they have established a claim to primacy; what we shall find causation to mean in *their* fields is what the term should be taken as meaning. Only if Drieschian "entelechies," psychical causation, and other unknown types, can be reduced to essentially the same logical structure as that of physical or chemical causation, should they be called by the same name. This is, in a sense, only a verbal issue, but it is one of some importance in the interest of an exact philosophical vocabulary.

So far, we have physics and chemistry on our hands; as wide a field as one could wish. It can, however, be narrowed. The causal processes studied in chemistry are, it appears, regarded by that science as further reducible, and statable ultimately in the terms of physics. Hence arose the science of Physical or Theoretical Chemistry. Professor Nernst, writing twenty years ago, when relatively very little of this reduction had been done, said: "The question of the nature of the forces which come into play in the chemical union or decomposition of substances, was agitated long before a scientific chemistry existed. As long ago as the time of the Grecian philosophers, the "love and hate" of the atoms were spoken of as the causes of the changes of matter; and regarding our knowledge of the nature of chemical forces, not much further advance has been made even at the present time."[6] "It can not be emphasized enough that we are as yet very far from reaching the goal: *viz.*, the explanation of chemical decompositions by the play of well-defined and well-investigated physical forces" (p. 354). Since then, however, considerably more has been done toward reaching this goal, by the electrical theory of matter.[7] For the rest, we can hardly take it as containing definite types of causal process, when it is believed to be further reducible. The situation seems to be analogous to that of biology, where types *peculiar to that science* are not generally agreed to exist. In the still somewhat unsettled condition of chemistry on this point, we must leave it and confine ourselves to physics.

In the field of physics there are apparently many kinds of causal connection. Thus: an inelastic body strikes another inelastic body;

[6] W. Nernst, "Theoretical Chemistry," Eng. tr., London, 1895, page 353.

[7] *Cf.* J. J. Thomson, "Electricity and Matter," London, 1904, Ch. 5.

this cause is followed by the effect that both move on in contact. Again, a ray of light enters a glass prism; it is refracted. These are, on the surface, quite different types of causation. An exhaustive enumeration of all such types would carry us through a large text-book of physics. Nevertheless, an account of the cause-effect relation which omitted any of them would be lacking in generality and therefore inadequate. Fortunately, however, the number may be greatly reduced. While the fields of dynamics, heat, light, etc., are at first appearance so disparate, yet physics treats large portions of some fields as cases of some other field. *E.g.*, many types of causal relation in the field of light are reduced to electrical types. In fact, glancing over a standard text-book, we find that there are only a few types that look really distinct. Our task is now to show these forth.

The total field of nature, so far as studied by physics, is comprised under the following divisions: mechanics (including statics and dynamics), "properties of matter" such as elasticity, capillarity, density, etc., heat, sound, light and radiant energy, magnetism, electricity. To causal connections in each of these fields we must add those embodied in transformations of energy from one field to another; *e. g.*, of electricity into light, of motion into heat or light, etc. This classification is not quite a mutually exclusive one, nor has it any obvious *fundamentum divisionis*, but it contains all that is known, with general agreement and certainty, of the actual causal relations in the world. Let us take them in order, beginning with mechanics.

The inclusion of statics, or the study of the causes of equilibrium, encounters a certain objection. Some philosophers would say that here are no *events* and therefore no causal connection. Several answers to this are possible. (1) It rests on a preconceived definition of cause, and can in this inquiry have no weight. Statics *explains why* a body is in equilibrium: it regards the position of the weight-arm as due to that of the power-arm of the lever. In other words, this field is to be included because science treats it as if included. (2) A condition of equilibrium may be regarded as an event, as much as a motion. It occupies time and exists in the world of fact. (3) There is no *a priori* reason why rest can not be a cause of, as well as caused by, either rest or motion. Continuation of the same condition in time is as real, and as dependent on preceding conditions, as change. It may be that things as inert as circles do the causing in some cases. It is a wholly empirical question.

What are the elementary causal situations in statics, out of which *all* the situations studied in that science are composed? These will be the types sought for. They are, I think, just three in number.

They are the two laws which are respectively called (1) the principle of the transmissibility of force, (2) the principle of composition and resolution of forces, and (3) the definition of the moment of a force about an axis, as producing a tendency to rotation. Every statical situation seems to be a case of one or more of these. Thus, the lever is a case of (3), the centre of gravity of a body is determined by (2) and (1), the pulley is a case of (3), the inclined plane of (2). The statics of fluids (liquids and gases) contain no principles beyond those of the statics of solids. Even if it should be the case that these three elementary cases are further reducible, it will do little harm; the danger is that we examine too little rather than too much.

Dynamics is in general parallel to statics, their difference depending upon that between *tendency* to motion and *actual* motion. Indeed, "every dynamical problem can, by the help of D'Alembert's principle, be reduced to one in Statics."[8] We might, then, simply consider the three laws of Newton as the elementary cases for both Dynamics and Statics, and let that suffice. "The principles of Newton suffice by themselves, without the introduction of any new laws, to explore thoroughly every mechanical phenomenon practically occurring, whether it belongs to Statics or to Dynamics."[9] Nevertheless, it is sometimes more conducive to clear insight to show different instances of the same type. We shall therefore consider the composition and resolution of velocities and accelerations, the law of inertia and uniform motion, the case of a body's motion as changed by the external force of gravitation (the second law), and of bodies undergoing impact with other bodies (the third law). In regard to Newton's first law, it is true that it does not hold for very high velocities, because for such velocities the electrical state of the particle changes and increases the mass. This, however, is no denial of the law. It also happens that the bodies which act in accord with the causal laws of dynamics, act at the same time under certain statical conditions; so that the static and dynamic types are at once combined in single events. This combination of many causes or effects into one must also be dealt with.

Further cases under Mechanics are such as show transformation from a static to a dynamic situation or the reverse. For example, a pressure is the cause of a motion; the attraction of the earth causes a body to fall when the support is removed. In general, this type of case may be called the passage from potential to kinetic energy, or the reverse. It forms, I think, a distinct type of causal sequence and as such deserves special examination.

[8] Routh, "Elementary Rigid Dynamics," page 316.

[9] Mach, *Science of Mechanics*, Eng. tr., page 256.

"Properties of matter" include elasticity, friction, resistance of a medium to motion through it, the liquid, viscous, and gaseous states, surface tension, capillarity, diffusion, osmosis, cohesion, density, solution, gravitation, crystallization. The ways in which these properties behave, and determine events, are, of course, types of causal connection. Some, however, have been reduced to mechanical cases: *e. g.*, the liquid and gaseous states are treated under the mechanical sciences of hydrostatics, hydrodynamics, and kinetic theory of gases. Surface tension, capillarity, diffusion, osmosis, and solution are also conceived in mechanical terms, *i. e.*, terms of molecular action. Viscosity is a property of liquids which is due to internal friction. There remain, then, elasticity, friction, resistance, density, cohesion, gravitation, and crystallization. None of these has as yet been wholly reduced to cases of mechanical action, static or dynamic. In this division, also, it will be best to place that very general property of matter which is defined under the law of indestructibility, or, as sometimes named, the conservation of mass.

The field of events classified under Sound contains none but mechanical types, combined with the above "properties." Under Heat are two kinds: (1) those events, such as convection, conduction, expansion, etc., which are either clearly mechanical or are explained by the dynamical molecular theory of heat, and (2) radiant heat. This last has been placed under the head of Radiant Energy, which in turn is reduced to terms of electrical disturbance. All the phenomena of Light are accounted for in terms of electricity. Of the other known kinds of radiant energy, such as X-rays, Becquerel rays, etc., so far as they are explained the same is true. The field of Magnetism contains only such events as are reduced to cases of electrodynamics. Under Electricity the fundamental kind of event seems to be the mutual attraction and repulsion of small charged bodies. This may perhaps be couched in terms of ether-strain, but is in any case at present conceived to be a non-mechanical type. The development of this conception in the electron-theory has in fact explained so many phenomena of chemistry that it is regarded by many as indicating the ultimate constitution of matter. However that may be, we do seem to find in the fields of Heat, Light, Radiant Energy, Magnetism, Electricity, and Chemical Transformation, a great class of events of a unique type. Each such event constitutes a cause-effect sequence as clearly as does mechanical impact or gravitation; but neither seems as yet reduced to the other. According to the present view of science, then, all cause-effect situations in nature are in the last analysis, and so far as there is general agreement, either mechanical cases, or cases determined by "properties

of matter," such as elasticity, friction, etc., or cases of electricity, or combinations of some or all of these. And this can now be seen to hold as well for transformations of energy from one kind to another, *viz.*, heat to motion, electricity to heat or motion, heat to light, etc. For the electric "current" is conceived, as we shall find, to be motion, and hence may lead to motion in the shape of light, heat, or mechanical energy; and conversely. In general, no new type of causation appears in such processes; so we may omit the study of transformations of energy. Our task is now to ascertain the logical structure of the typical events in each of these three fields: that of Mechanics, of "Properties of Matter," and of Electricity.

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RULE VERSUS DISCRETION

WHEN the conference on Legal and Social Philosophy decided to place as the central problem for the next meeting the question of the Province of Rule and Discretion in the Administration of Justice, one of our honored colleagues, who had followed the first meeting with generous sympathy, expressed grave doubt as to whether the question was of sufficient general or philosophic importance. The prevailing absorption of philosophy in the problems of epistemology makes it probable that this doubt is shared by a great many, and makes it incumbent on us to show cause why philosophers should busy themselves with this question. It will, however, be sufficient for the present purpose if the following considerations succeed in indicating genuine philosophic problems rather than any adequate solution.

I

Amidst the diverse attitudes which people take to our courts of law, nothing is more usual than the remark of educated people: "If our judges would only occasionally forget their legal technicalities and rely more often on common sense and justice, we would have less reason to be dissatisfied with their work." This remark is based on the belief that the end of courts of law is to render justice, and that the technical rules are at best only means towards this end and ought not, therefore, ever to stand in the way of the end itself. To which the lawyer answers, that if the judge is to feel free to disregard a law in the interest of what he thinks justice, then the law becomes a dead letter and we are given over to the arbitrary sway of caprice, which is equivalent to anarchy or tyranny. The classical expression of this point of view occurs in Maine's Ancient Law. Commenting on the

fact that the Greeks "disembarrassed themselves with astonishing facility from cumbrous forms of procedure and needless terms of art, and soon ceased to attach any superstitious value to rigid rules and prescriptions," Maine says that it was not for the ultimate advantage of mankind that they did so, for "no durable system of jurisprudence could be produced in this way. A community which never hesitated to relax rules of written law whenever they stood in the way of an ideally perfect decision on the facts of particular cases, would only, if it bequeathed any body of judicial principles to posterity, bequeath one consisting of the ideas of right and wrong which happened to be prevalent at the time. Such a jurisprudence would contain no framework to which the more advanced conceptions of subsequent ages could be fitted. It would amount at best to a philosophy, marked with the imperfections of the civilization under which it grew up."[1]

The attitude of the legalist to a system of law that merely achieves justice is similar to the attitude of a properly trained physician to an empiric medicine that merely cures people. To be worthy of respect, both justice and medicine must work, not empirically from hand to mouth, but according to a scientific system of rules. The predominant reason for this rationalistic attitude in law is a practical one, the need of certainty in human transactions and security against unforeseen changes. Justice has been, and is still in several fields, administered according to the sense of justice of the judge. But the judge decides a controversy only after it has arisen. In entering, however, on any transaction that involves reliance on future conditions, people must in some measure know beforehand what they may and what they may not do. Hence the need of definite rules to govern human transactions and according to which controversies shall be decided. The other advantages of justice administered according to rules or laws, *viz.*, that it provides a check against partiality, ignorance, etc., are really subordinate to this great desideratum of certainty.

The non-legal philosopher may be inclined to question the assumption at the basis of the above view, to wit, that the popular sense of justice is more variable and less certain than the popular knowledge and understanding of the law. But whatever may be said on the two sides of this question, it is certain that wherever we meet a non-homogeneous population such, *e. g.*, as characterizes our urban life, there we find actual differences of moral standard, and laws like treaties of peace are necessary to establish uniform standards.

Legal philosophers, especially those of the English school, make a great deal of the need of certainty in matters which are morally in-

[1] Maine, "Ancient Law," Ch. 4.

different. The familiar illustration of this is the rule of the road.[2] It makes no difference whether the rule of the road is to turn to the left or to turn to the right. The important thing is that there should be a rule so that people may know how to avoid collision. The legal or conventional part of justice, Aristotle tells us, "is what originally was indifferent, but having been enacted, is no longer so."[3] The assertion is also frequently made that "it is often more important that a rule should be definite, certain, known, and permanent, than that it should be ideally just."[4] Though this may be somewhat questionable from a rigorous ethical point of view, there can be no doubt that most people would rather stand a small loss than remain long in a condition of doubt as to their rights.

For these reasons the legalist regards discretion on the part of the magistrates as anarchy and the appeal from law to justice as shallow and vicious. But now the plot thickens. Having banished the layman or the empiric, the legalist meets his Nemesis in his own household. The requirement of certainty and the effort to eliminate all discretion on the part of the magistrate make legal rules rigid, formal, and inimical to progress. And when the law (in its effort to keep up somewhat with the progress of life) develops, it becomes tremendously complex, so that it becomes in practise unworkable and even uncertain. Hence, legal history shows, if not alternating periods of justice according to law and justice without law, at least periodic waves of reform during which the sense of justice, natural law, or equity introduces life and flexibility into the law and makes it adjustable to its work. In course of time, however, under the social demand for certainty, equity gets hardened and reduced to rigid rules, so that, after a while, a new reform wave is necessary.

It would thus seem that life demands of law two seemingly contradictory qualities, certainty or fixity and flexibility; the former is needed that human enterprise be not paralyzed by doubt and uncertainty, and the latter that it be not strangled by the hand of the dead past.

A detailed analysis of the factors which enter into this problem and make it so significant to-day is not necessary for our present purpose. The problem has been treated in a masterly way by Professor Pound[5] in a series of articles which leave little to be desired by the philosopher who wishes to orient himself in this matter. It may be

[2] Pollock, "Essays in Jurisprudence and Ethics," page 24.

[3] "Ethics," V., 7.

[4] Salmond, "Jurisprudence" (3d. ed.), page 20.

[5] *Columbia Law Review*, December, 1913, and January and February, 1914, and *Harvard Law Review*, January, 1914.

useful, however, to consider here the purely logical aspect of the dialectic immanent in this field of human endeavor.

II

That the dilemma between framing hard and fast rules or else allowing room for discretion is a real one, can be seen in other fields of human endeavor as well as in the law. It is felt by every one who has to give orders to a human subordinate. You attempt to guard yourself against his mistakes or departures from your settled policy by laying down fixed rules. But when your subordinate rigorously follows these rules, you are vexed that he does so mechanically without using common sense or "judgment." In the ancient and honorable art of war the tendency has been to emphasize mechanical obedience. Yet military history abundantly shows how initiative on the part of subordinate officers or even privates carried the day. A distinguished authority in our national game has said that the too-scientific players "follow the rules even when the rules are bad—which is worse than no rules at all," and every one recalls the case of the British pickets at Balaklava who were so highly trained that the camp was surprised before they knew it, when common sense might have saved the day.

The most general form of this difficulty in the field of practise is to be found in the political philosophy of Plato and Aristotle.[6] Shall the law or the just man rule? Plato, as is well known, decides on the latter alternative, using the analogy of the physician who, though he writes out a prescription, ought to be free to change it when he finds that conditions have changed. As a rule, however, he tells us, it is better that the law should be obeyed. Aristotle, influenced, perhaps, by the polemic motive, decides in favor of government by law rather than by men; but when we consider his admission that laws are frequently the result of party bias, and his continued insistence that equity exercised by magistrates is necessary as a corrective to the abstract generality of laws which can not possibly take all circumstances into account, we see that our American publicists are not really genuine disciples of the Stagyrite when they deify the one-sided dogma about "government by law" as the final revelation of political truth for all times to come. In the intellectual realm this difficulty shows itself in the form of the familiar dilemma between rationalism and empiricism. Should we put our faith in rules or in concrete cases? In his address before the International Congress of Physicists, the great Poincaré began, "Experience is the only source of truth: it alone can teach us anything new; it alone can give us certainty. These are two points which no one can contest." But on

[6] Plato, "Statesman," pages 293–300; Aristotle, "Politics," II., 8; III., 11, 15, 16; IV., 4.

the next page he tells us that "there are good experiments and poor ones," and then, again, that "the physicist *can not restrict himself to generalizing his experiments, he must correct them.*"[7] Thus we keep on appealing from principle to fact and then back again from fact to principle. This is especially noticeable in ethics. How are we to settle disagreements as to ethical matters? By appeal to principle! But if the principles are questioned, we appeal to particular instances.

It is the essence of rationalism—the naïve faith in the adequacy of all intellectual distinctions—to declare that certain things can not be or certain tasks can not be performed because they involve contradictions. The history of human thought ought to warn us against this easy assumption. All human difficulties are contradictions before they are solved. For a man to cross a river and not get wet was a patent contradiction before the invention of boats. At any rate, a distrust of the classical forms of rationalism leads to a wise scepticism about sharp antithesis. Certainty and flexibility may be difficult qualities to bring together, but they are really not logical contradictions. In the past we have tried to create certainty exclusively through hard and fast rules, and this has admittedly broken down in practise. The legalist's dilemma, either a rigid rule without discretion on the part of the judge, or else arbitrary caprice, does not, however, exhaust all possibilities. If it were true, there would be no middle course between absolutism and anarchy. (In the American theory of government, "the Law" takes the place of the absolute monarch or sovereign). As a matter of fact, discretion is not lawless. When we praise any one for showing fine discretion on any occasion, we certainly do not mean that he has acted in an anarchic manner. Discretion, in general, represents more or less instinctive evaluation or appreciation of the diverse elements that enter into a complex; and such instinctive evaluation must precede conscious rule-making.[8] Rule thus bears to discretion the relation of *limit* (in the mathematical sense). It is this which enables us to understand the present tendency in American public life to take away administrative duties from courts that exercise them according to fixed rules, and transfer them to commissions clothed with large discretionary power. Doubtless these commissions will, sooner or later, formulate their discretion into rules (as did the courts of chancery), but observe that such commissions have means of studying the effect of their decisions, and of modifying their attitude in accordance with the results of enlarged

[7] "Rapports present au Congrès International de Physique," I., pages 1, 2, 3 (italics mine).

[8] That judges must take part in the process of law-making, I have attempted to show in my article in the *American Law Review*, March, 1914.

experience, while our regular courts can only guess at the social effects of the rules which they work out, and have no guide except reliance on *a priori* maxims. That there is really nothing to prevent our courts from likewise introducing statistical and scientific material to guide them in their work is shown by the organization of the municipal courts of Chicago.

In European countries the emancipation from legalistic rationalism has taken the form of a revolt from the ancient dogma that a judge can decide controversies growing out of modern conditions by finding the will of a legislator who could not possibly have foreseen the complicated changes which time has brought about. This school of *Freie Rechtsfindung* (*libre recherche scientifique*) insists, however, that they are not contending for a lawless jurisprudence. On the contrary, by judges availing themselves of the material offered by the social sciences, the interests of social security will be all the better protected.[9]

In the legalist's references to discretion we always find a sharp antithesis between rules of reason and arbitrary will. It is easy to dismiss all this as based on an antiquated faculty psychology, but such verbal refutations, though popular, are not very illuminating.

What is reason?

When the defenders of the classical theory of law tell us that law is reason, they mean that law is deduced from legal first principles which are as eternal, self-evident, and binding as the axioms of Euclid.[10] Hence the consistent adherents of this view, like Wolfe, do not hesitate to deduce the most detailed regulations of life, table manners, etc., from natural law.

Against this view we have, besides the refutation of the self-evident character of Euclid's axioms and consequent distrust of self-evident propositions generally, a whole mass of evidence that the self-evident principles to which legal philosophers have appealed are vague, frequently in contradiction with other equally self-evident principles, and always really dependent on a fundamental choice or preference. Principles like "equality before the law" are clear only so long as we do not apply them to actual problems where all sorts of distinctions between people have to be made; the "right of each man to what he produces" comes into flat contradiction, in the case of invalids, etc., with the equally self-evident "right to life." Even the supposedly definite principle that "the whole is always greater than the part" becomes somewhat vague when applied to moral issues by

[9] See Gény, "Méthode d'Interprétation"; Ehrlich, "Freie Rechtsfindung und freie Rechtswissenschift," and the various works of Stampe.

[10] This is explicitly stated by the leading Catholic social philosopher of today, Cathrein; see his "Socialism," page 126.

such a clear thinker as St. Thomas, when, *e. g.*, he says, "as the part and the whole are in a certain sense identical, the part may in a certain sense claim what belongs to the whole."[11]

As a matter of fact, when people approve a proposal as reasonable or condemn it as unreasonable, they mean in the first case either (1) that the proposal agrees with their own usual assumptions, (2) that the proposal forms an intellectually coherent or consistent body, and (3) that ulterior as opposed to immediate interests are safeguarded by it. A system of justice according to law (which involves trained jurists) is eminently reasonable in all these three senses; *i. e.*, it is (1) conservative, (2) emphasizes coherency, system, or, if you please, intellectual symmetry, and (3) safeguards fundamental interests.

Those, however, who insist that reason or logic does not determine the ends of the law, that it is merely a tool to bring about ends which we have on other grounds consciously or unconsciously adopted, are misled, by a too simple analysis of the relation of means or instrument to its end, to suppose that the end determines the means and never *vice versa*. Reflection on actual situations shows that this is not true. Give a boy a hatchet and he will want to do things for which he had no desire before; or, if this illustration is not sufficiently dignified, consider how the invention of rapid means of travel and communication has introduced Speed (alias Efficiency) as the supreme deity of our civilization and final arbiter of our personal as well as social ends.

Philosophy has for some time been engaged in deciding the relative claims of rationalism and empiricism, and has tried to do so, in the main, on the basis of an analysis of the procedure of the mathematical or physical sciences. A thorough study of the see-saw between rule and discretion in law suggests the inadequacy of the current antithesis between these two points of view. The rationalistic and empirical motives can not be fully understood unless they are seen in their application to the whole life which we call civilization. Thus the fundamental motive of all radical empiricism comes out most clearly, I venture to think, in James's essay on the "Moral Equivalent of War,"[12] with its expressed preference for all the horrors of war rather than "a world of clerks and teachers, of coeducation and zoophily, of consumers' leagues, and associated charities," etc. Empiricism is the motive which makes us all impatient of restraint and detest the world of rules and regulations with its ceremonies and red tape. It makes us tired of routine and anxious for the thrill of novelty. It glorifies immediacy, and is essentially an

[11] Summa Theol.," 2a, 2ae QLXI., Art. 1 and 2. For a detailed exposé of some juristic "first principles," see Demogue, "Les Notions Fondamentales du Droit Privé." Book I.

[12] "Memories and Addresses."

attitude of trusting "nature."[13] On the other hand, rationalism, the love of order and certainty, sets greatest value on what the temperamentalist calls the artificialities of life; it makes us build houses to protect us against winds, rain, and the variations of temperature, and likewise set up theories to protect us against the flood of new and unexpected experiences. Its essence is thus the setting up of arbitrary bounds or limits to minimize the bewildering variations of nature and to eliminate some of the shock of novelty. Just as it builds dams and dikes to control the great rivers, so it sets up laws and ceremonies to provide channels through which the fitful floods of human passion and impulses may run more or less smoothly.

To the extent to which we recognize the inseparability of these two motives in the life of civilization can we approach, it seems to me, any adequate appreciation of the purely logical problem of rationalism versus empiricism.

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THE MODERN SPIRIT AND DR. SPINGARN

IN a recent issue of this JOURNAL[1] Dr. Spingarn says that my volume "The Masters of Modern French Criticism" lacks "unified and consistent thought" and is indeed only an expression of "personal bias." Perhaps if I state briefly the argument I have aimed to put into this book it may have more meaning for some of your readers than it seems to have had for Dr. Spingarn. I remark in my preface that the literary critic is confronted to-day by the same fundamental problem as the philosopher. "For, to inquire whether the critic can judge, and if so by what standards, is only a form of the more general inquiry whether the philosopher can discover any unifying principle to oppose to mere flux and relativity." French criticism has been marked during the past century by a magnificient expansion of comprehension and sympathy, but this expansion has been more or less at the expense of judgment because the critics have lost traditional standards and have failed as yet to find inner standards to take their place; they have, in short, become impressionists. These critical impressionists are, I point out, closely related to philosophers like James and Bergson who revel in the infinite otherwiseness of things, the warm immediacy of individual impulse, and dismiss everything that makes for unity as cold, inert, merely conceptual.

[13] Hence the easy transition from radical empiricism to mysticism.

[1] Vol. X., page 693.

What are we to oppose to this purely unchecked and temperamental view of life, this attempt, as the pragmatist has happily phrased it, to live in a universe with the lid off? Some theory of the absolute? Nothing could be farther from my thought. Because a man does not care to live in a universe with the lid off, it does not follow that he must abide in some shadow world of Kantian concepts. The intellectualist always writes with an eye on the anti-intellectualist, and the anti-intellectualist counters upon the intellectualist, but the true opponent of both intellectualist and anti-intellectualist is the man of intuitive common sense. For common sense may not only rest upon intuition, but on a form of intuition that should be especially cultivated by those who wish to escape from the present naturalistic imbroglio. What I have attempted to do throughout my volume is to apply a sort of Socratic dialectic to the word intuition and to the dangerous sophistries that are being introduced under cover of this word into contemporary thought. It has been assumed that the only type of intuitive person is the person who has the intuition of change, of flux and relativity, and who stands, therefore, for all that is expansive and expressive and individual. In contrast to this type of intuition which makes itself felt practically as vital impulse (*élan vital*) I have distinguished another type of intuition—the perception, namely, on the part of the individual, of a something in himself that he possesses in common with other men. In its higher forms (as possessed, for example, by Joubert) this perception may be defined as inspired and imaginative common sense. In opposition to *élan vital,* it makes itself felt practically as an inner check or power of vital control (*frein vital*). I have, therefore, defined two main directions of the human spirit, corresponding to the two main types of intuition, and have opposed a philosophy of the inner check to the various forms of the philosophy of the flux that are now sweeping the occidental world.

There is, then, something more vital than vital impulse, and that is the power to control this impulse and direct it to some human end. The man of naturalistic temper is prone to look on impulse alone as vital and dynamic, and to conceive of everything that restrains as dead and mechanical. Those who stand for concentration and discipline he regards as reactionary or patronizes pityingly as "academic."

I am flattered that Dr. Spingarn should think me an American Brunetière. I am less flattered by the way he dismisses as a vain flourish of words all the passages in which I am at pains to distinguish between my point of view and that of Brunetière. It is true that, like Brunetière, I would react against naturalism; but,

unlike Brunetière, I would react in the name of the modern spirit. For the modern spirit does not necessarily coincide with the naturalistic spirit; it is simply the positive and critical spirit, the spirit that refuses to submit tamely to authority, but would try out and test everything according to the facts. Now, however tradition may confirm my dualistic conception, I do not rest it, as Brunetière does his conception, immediately on tradition, but on a fact—on the presence, namely, in the breast of the individual man of a something that is anterior to both intellect and emotion, that makes itself felt experimentally as a power of control over intellect and emotion. Kant tends to draw men away from a firm grasp on this primary fact of human nature into mere intellectualism when he denies the superrational intuitions. Bergson significantly takes this denial as the point of departure for his own philosophy.[2] Benedetto Croce, Dr. Spingarn's master, rests his system on a similar denial.[3]

It is true, as Dr. Spingarn says, that I attack scientific positivism, but for a reason one would scarcely gather from his review—namely, because it is not sufficiently positive. The fault I have to find with men like Taine is not that they are hard-headed, but that they are not hard-headed enough. The scientist who tries to stretch his observation of natural law to cover the whole of human nature is really being drawn away from the positive and critical attitude into some phantasmagoria of the intellect. In the name of this phantasmagoria he tries to deny one of the two main directions of the human spirit. What the present situation would seem to require is not the transcendentalist, but the spiritual positivist who will plant himself on the facts of the human law at least as firmly as the true scientist does on the facts of the natural law, and who will look with equal disdain on the apriorist and the metaphysician.

One of the results of the naturalistic denial of dualism in the field of literature and literary criticism has been to obliterate the boundaries between creation and criticism, between genius and taste. "The identity of genius and taste," says Dr. Spingarn, in his "New Criticism," is the final achievement of modern thought on the subject of art, and it means that, fundamentally, the critical and the creative instincts are one and the same." This doctrine at all events is not new. It is in germ in precursors of the naturalistic movement like Rousseau and Diderot and, Croce would add, Vico; it is stated with perfect clearness by A. W. Schlegel[4] and passed on by him to Madame de Staël.[5] Those who for a century or more have been

[2] See his article on "L'Intuition philosophique" in *Revue de Métaphysique et de Morale,* Nov., 1911.

[3] "Estetica," page 68.

[4] "Vorlesungen über Schöne Litteratur und Kunst" (1803) in *Deutsche Litteraturdenkmale,* 18, pages 82–83.

[5] *Cf.* "The Masters of Modern French Criticism," pages 16–17.

putting forth these extreme views are playing into the hands of the reactionaries, who assert that the modern spirit is in its essence only anarchy, the readiness to sacrifice the true form and symmetry of life to mere expression. One should aim, on the contrary, to be a modern of moderns, and at the same time practise the disciplinary virtues and so deprive the reactionaries of their only serious argument.

I understand perfectly that the principles that seem to me to make for this union of the disciplinary virtues with the modern spirit do not seem to Dr. Spingarn principles at all, but merely "personal bias"; they are too different from the point of view he has borrowed from Croce. I do not, however, find it easy to understand why so distinguished an investigator as the author of "Literary Criticism in the Renaissance" should fall into palpable misstatements of fact. For example, he says of my essay on Scherer: "The reader will search in vain *for a single allusion to literature or art,* to the life of the imagination in any of its forms." If the reader turns to the essay on Scherer he will find detailed discussion of Scherer's attitude towards Molière, Sainte-Beuve, Zola, Baudelaire, and Goethe, along with less detailed treatment of his attitude towards Arnold, Amiel, Hugo, Gautier, Lamartine, and others! I admit, however, that my whole volume is meant as a protest against the romantic tendency to withdraw into the tower of ivory—in other words, to treat art and literature as something apart from life.

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REVIEWS AND ABSTRACTS OF LITERATURE

French Prophets of Yesterday. ALBERT L. GUÉRARD. New York: D. Appleton and Company. 1913. Pp. 288.

This is a book of a good kind, the subject is well chosen, and the work is skilfully done. The writer traces the currents of religious thought under the Second Empire as revealed, not merely by theologians and philosophers, but by historians, critics, poets, novelists, and essayists, who often express and develop the ideas of an age far more than the leaders of the schools. In the period under review France had ceased to be the acknowledged leader of the intellectual world; but she remained a great clearing-house of thought. The contending influences which have gone to make up modern life on its intellectual side were embodied there in such great personalities as Scherer, Michelet, Hugo, Sainte-Beuve, Taine, and Renan, whom one can not omit from one's acquaintanceship without serious loss. Professor Guérard analyzes the contributions of all these, and of many smaller men, to the thought of their time, not only with absolute fairness, but with a breadth of sympathy and a fulness of knowledge no less praise-

worthy than rare. The book deserves to be widely read by students of both literature and philosophy; any young man gifted with intellectual curiosity should be grateful for the opportunity to find out what names like Veuillot, Montalembert, Guizot, Quinet, Leconte de Lisle, and Alfred de Vigny really stand for. And Professor Guérard has not achieved impartiality at the price of a colorless moderation; he has his own views, and is not afraid to express them trenchantly enough. His judgment of Taine, for example, will appear to some unduly severe:

"An appearance of unanswerable logic, a display of minute facts, an imperious style, and above all the ardor of evident sincerity, gave outward unity to a complex and contradictory system. His example strengthened that which is more dangerous than ignorance, and even than frivolity —pseudo-science. Clear, honest thinking in the good old French way, modest, cautious, painstaking research of the modern kind, suffered equally from the success of this pessimistic poet, earnestly masquerading as a logician and a scientist. His intellect was a powerful and delicate instrument which, through some original vice, was *untrue:* perhaps the harsh word of a political opponent was none too harsh; 'Taine est un esprit faux.' Always stimulating, always unreliable and dangerous, he has been unduly praised as an intellectual and spiritual leader; whilst his fame as an artist is firmly established, and will probably grow brighter when his scientific claims are dismissed and forgotten."

It will be seen from the above that Professor Guérard writes English uncommonly well; indeed, a careful perusal reveals only one or two slips,[1] easily pardonable in a writer whose mother language is French. His eloquence carries one through occasional eddies and shallows of thought which might perhaps have been better disregarded. Maret's attempt to liberalize the Church, he says, is "deeply forgotten," and it is a question whether it was worth while to recall it, even in a survey so comprehensive as this. Professor Guérard never ceases to be intellectually alert and therefore stimulating, but he is naturally at his best in dealing with people and movements that have really counted. By the side of his judgment of Taine it is perhaps only fair to put his more favorable estimate of Renan:

"They call him frivolous: but for fifty years he devoted his strength to minute and patient research, and died in harness, leaving forty scholarly volumes behind him. They call him elusive and shifty: but he never varied in his main course, and, when he presented alternative hypotheses, he did so out of broad-mindedness and candor. They call him pliant, effeminate, a moral weakling: but he went boldly through a spiritual ordeal from which most men of the rugged and strenuous type would shrink and seek refuge in dogmatism or compromise. They call him selfish and a Hedonist, whilst he preached and practised absolute renunciation to whatever was not the ideal. They rebuke him for his smiling benevolence, as if cheerfulness was not the supreme grace of the strong, and indulgence the privilege of the pure."

Professor Guérard makes a good point in support of this view in a foot-

[1] "Which" for "who," for instance, in the middle of page 49.

note in which he draws attention to the fact that the two most famous disciples of Renan, Jules Lemaître and Anatole France, did not fail to act with decision and energy in the Dreyfus crisis, although they took opposite sides. His personal recollections of that mighty controversy are interesting in themselves, and are used to bring home an important truth:

"Humanitarianism survives to the present day, as a faith, a hope, a discipline. It was an essential part of the religion of the great Romanticists, Hugo, Lamartine, George Sand; it remains the spiritual backbone of France. A dozen years ago, when a great moral issue was placed before the country, when the Catholics seemed to think only of material order, conservation, and safety, it was in the name of Humanitarianism that Zola led his great crusade for truth and justice. It was our privilege to attend many tumultous meetings in those days; with quiet courage the speakers—scholars, scientists, ministers, anarchists, for all were welcome to their share of honor and danger—were facing obloquy, ostracism, and even death; no elaborate High Mass in an ancient cathedral, no revivalist meeting of the most successful evangelist, has ever given us a deeper feeling of what religion should be."

Professor Guérard amply redeems the period he has chosen for study from the reproach of spiritual indifference too lightly urged against it and against nineteenth-century France in general by people who do not know what they are talking about. His remark that "France in the sixties, materialistic as it seemed, discussed religion with an intensity, an earnestness, which contrasts curiously with the good-humored indifference of the British and American public at the present day might be extended with perfect truth to France before and since. Professor Guérard has deserved well of his country in this faithful and loving study; and he would add to the obligations under which he has laid American and English readers if he were to add a companion volume on "French Prophets of To-day," for which the material is no less rich, and for which he is abundantly qualified.

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Heredity and Memory. JAMES WARD. Henry Sedgwick Memorial lecture at Newnham College. Cambridge University Press. 1912. Pp. 56.

Professor Ward finds the starting-point of his discussion in the directed activities of our conscious life. This affords an interpretative principle which, on the ground of continuity, is extended to include all living processes. To the objection of the mechanist that continuity may be read in either direction he replies that an explanatory concept must be derived from cases where it is typically manifested.

The characteristic features which the problem presents are individualization and progress. The latter comprises both inheritance of the achievements of our predecessors and the attainment of expertness through experience. "Just as later generations inherit from earlier generations, so later phases of the individual inherit, as it were, from earlier phases." In

the progressive modifications which thus arise in the plastic individual is given "the possibility of an indefinite advance upwards in the scale of life without the succession of individuals which heredity involves."

In the latter case the individual in a brief period repeats with certain accelerations and foreshortenings the vast evolutionary history of which he is the result. In an immortal and plastic individual all this might be achieved, but every modification would be the result of function. A type which actually connects these two series is presented by the unicellular organisms where an endless series of individuals, each as old as the species, arises through successive divisions by which, without death, the modifications of structure progressively acquired are continuously transmitted.

If now we suppose such an individual gifted with memory to be set back from successively higher stages to the beginning of the whole process again, the stages already traversed would be repeated each time with accelerated rapidity, the latest acquisitions always involving the greatest time and difficulty in their repetition. At any point in his history such an individual would represent the sum of modifications acquired in the course of experience.

This conception, which is fundamental to our notion of individual existence, has met great opposition when applied to the derivation of characteristics in the successive individuals of an hereditary series. "It is unproved, impossible, and needless," say the critics. To this question the writer then turns. In both cases alike a form of immortality is predicated, but in that of the hypothetical individual modifications are due to the teleological influences of experience, while in the case of the immortal germ-plasm the factors, natural selection and amphimixis, are both non-teleological. The attainment of the result is obviously possible under the former conditions; under the latter Ward thinks it to be inconceivable.

In the protozoa it is confessedly the former mode of transmission which is present: if either term is to be denied it is the fact of inheritance, not of acquisition. In the metazoa, according to Weissmannism, on the contrary, there is absolute discontinuity between individual and individual, so far as this system of acquired somatic modifications is concerned. One is thus at a loss to find any resemblance between the processes of evolution in unicellular and multicellular organisms, respectively.

The latest conception of intragerminal selection, formulated to meet the problem of germ and soma, is a "surrender both of the ancestral continuity and of the somatic discontinuity of the germ-plasm." But if the principle breaks down even in the single matter of nutrition it needs supplementation, and the whole question of possible modification must be raised anew.

To this Ward now turns in the development of a psychological or "mnemic" theory of heredity. In its modifiability and retentiveness "every living cell, whether living in isolation or as a member of a complex organism, must be credited with that organic memory which all life implies. In the higher complex organisms the mechanism of this development lies in the nervous system, but in the germ-plasm it is to be found in the nucleus of the cell. The germ-cell thus becomes "a definite unity, the

counterpart of the structural alterations wrought by habit in the parental organisms with which it has been in sympathetic rapport all along." We can neither assume that experience has no place in the building up of an organism nor that this process changes abruptly in passing from unicellular to multicellular forms. Ontology and heredity thus become aspects of a single process: what habit is for individual life heredity is for social life. The writer closes with a protest against the physical interpretation of this point of view. "The mnemic theory, then, if it is to be worth anything, seems to me clearly to require not merely physical records or 'engrams,' but living experience or tradition. The mnemic theory will work for those who can accept a monadistic or panpsychistic interpretation of the beings that make up the world, who believe with Spinoza and Leibnitz that 'all individual things are animated albeit in divers degrees.' But quite apart from difficulties of detail, I do not see how in principle it will work otherwise."

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An Introduction to Psychology. T. LOVEDAY and J. A. GREEN. Oxford: The Clarendon Press. 1912. Pp. 272.

This volume is prepared especially for teachers, assumes little knowledge on their part, and gives relatively little discussion of the technical psychological problems. It is a chatty discussion in essay style of the principal problems of psychology as they present themselves to the teacher who has not thought too deeply before reading the book. Much attention is given to the description of infancy and to the growth of the different capacities during the period covered by school life. Purpose as the controlling factor in attention, action, and thought is treated in two chapters; otherwise the book is for the most part devoted to a discussion of imagery, association, thought, and imagination, treated as different processes. Feeling, including emotion, is discussed in two chapters. On the whole, the book bears about the same relation to psychology that nature study does to the natural sciences. Within these limits it is well done.

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JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. November, 1913. *Degrees of Reality* (pp. 583–605): BERNARD MUSCIO. – The notion of degrees of Reality as employed in idealistic speculation is either based on an unwarranted assumption, and supported by unsound arguments, or else it becomes psychology and ethics. *Practical Success as the Criterion of Truth* (pp. 606–622): HENRY W. WRIGHT. – "The purpose of this paper is to investigate the meaning of practical success as a criterion of truth—when practical success is interpreted in terms of voluntary achievement." *The Problem of the Value-judgment* (pp. 623–638): DONALD W. FISHER. –

Develops the consequences of the view that every value is related to a subject in the sense of being emotionally valid for it. Analyzes the structure of the value-judgment and maintains that there is no distinction between value-judgments and other types of subject-predicate judgments. *The Dualism of Bergson* (pp. 639–652): NANN CLARK BARR. – The method of Bergson, that of making and subsequently resolving distinctions, shows a progressive development. In "Time and Free Will," distinctions are absolute. In "Matter and Memory," the distinctions earlier treated as ultimate are largely transcended. In "Creative Evolution," the final inclusive synthesis is reached. The result is "a genuine, though far from simple or traditional, idealism." *Reviews of Books:* B. Bosanquet, *The Value and Destiny of the Individual:* ERNEST ALBEE. F. Pillon, *L'Année Philosophique:* W. K. WRIGHT. John Theodore Merz, *A History of European Thought in the Nineteenth Century:* J. E. CREIGHTON. *Notices of New Books. Summaries of Articles. Notes.*

REVUE PHILOSOPHIQUE. October, 1913. *Sociologie et Psychologie* (pp. 337–357): J. LEUBA. – A criticism of Durkheim's conception of religion, in which the following differentiation of magic and religion is offered: the idea of an agent which can be acted upon by anthropopathic means is the distinctive trait of religion, while that of magic is the employment of means of influence that act upon the agent mechanically and automatically. The article advocates, against Durkheim, the importance of the psychology of the individual in sociology. *L'Inutilité du Vitalisme* (pp. 358–382): F. BOSC. – Neo-vitalism is rendered useless, without implying the triumph of materialistic monism, by a distinction between the life that characterizes all reality (*la vie cachée*) and the life that appears to the senses (*la vie apparente*). "... the principle of life appears as a general force which, by condensation, gives birth to matter, ... matter possesses in decomposition the property of emitting imponderable forces that approach more and more, in living complex bodies, the universal force." *L'Education et Bonheur* (pp. 383–403): J. FINOT. – A discussion of free-will in connection with education and happiness. *Notes et Documents. Pensée, Image et Conscience chez l'Animal et chez l'Homme:* G. SAINT-PAUL. *Revue Critique. La Lutte Philosophique et la Division des Croyances:* F. PAULHAN. *Analyses et Comptes Rendus.* Buhler, *Die Gestaltwahrnehmungen:* B. BOURDON. Luquet, *Les Dessins d'un Enfant:* E. CRAMAUSSEL. *Notices Bibliographiques. Revue des Périodiques étrangers.*

Torres, Alberto. Le Problème Mondial. Rio de Janeiro: Imprensa Nacional. 1913. Pp. xviii + 213.

Turró, R. Les Origines de la Connaissance. Paris: Librairie Felix Alcan. 1914. Pp. 274. 5 fr.

Veblen, Thorstein. The Instinct of Workmanship. New York: The Macmillan Company, 1914. Pp. x + 355. $1.50.

NOTES AND NEWS

THE following letter addressed to M. Fernand Vandérem is reprinted from the Paris *Figaro* of February 28:

MONSIEUR:

Je tiens à vous remercier pour l'article, fort joliment tourné, que vous avez bien voulu me consacrer dans le *Figaro*. Je vous suis particulièrement reconnaissant d'avoir rétabli la vérité sur un point essentiel. Quand on compare mes cours à ceux de Caro, on oublie que je n'ai jamais fait l'ombre d'une concession au "grand public", que mon enseignement s'adresse aux spécialistes, que je le rendais même de plus en plus technique à mesure que l'affluence à mes cours augmentait. Cette année, mon cours du vendredi porte sur "la Méthode en philosophie", et celui du samedi sur la deuxième partie de *l'Ethique* de Spinoza, c'est-à-dire sur ce qui a été écrit de plus difficile par le plus difficile des philosophes.

Il y a deux points sur lesquels il me serait impossible de me mettre d'accord avec vous;—ces deux points n'en font d'ailleurs, probablement, qu'un seul. D'une part, vous ne voyez dans la métaphysique qu'un tissu d'hypothèses indémontrables, et d'autre part vous estimez que l'accueil fait à mes doctrines par le public en général est incompréhensible. Permettez-moi de vous dire que la diffusion de ce qu'on est convenu d'appeler le "bergsonisme" tient tout simplement à ce que les initiés voient et à ce que les non-initiés entrevoient qu'ils ont affaire à une métaphysique moulée sur *l'expérience* (soit extérieure, soit intérieure), à une philosophie modeste mais décidée à rester sur un terrain solide, à une doctrine qui n'a rien de systématique, qui n'a pas réponse à tout, qui distingue des problèmes différents et les examine séparément, enfin à une philosophie capable de progresser et de se perfectionner indéfiniment comme la science. Chacun de mes livres m'a coûté plusieurs années de recherches scientifiques; et chacun d'eux aboutit, non pas à de vagues généralités, mais à des conclusions capables d'éclairer par quelque côté des questions très spéciales. Encore une fois c'est là ce qu'on aperçoit, distinctement ou confusément, quand on se rallie à cette philosophie.

Croyez, je vous prie, Monsieur, à mes sentiments distingués et dévoués.

H. BERGSON.

AT the Conference on Legal and Social Philosophy, to be held in Chicago on April 10 and 11, the sessions of the first day will be devoted to a joint meeting with the Western Philosophical Association. On Friday evening an informal dinner will be given by the local members from Northwestern and Chicago Universities, which will be followed by a Round Table Discussion on "The Advancement of Philosophic Jurisprudence." The final meeting of the Conference will occur on Saturday morning, April 11.

DR. OTTO KLEMM, docent at Leipzig, has been appointed professor of psychology in Alberta University, Edmonton, Canada.